

Appl. No. 10/650,243

Amdt. Dated October 29, 2004

Response to Office Action of July 29, 2004

**REMARKS:**

Applicants thank the examiner for the time and care taken in examining this application, but respectfully traverse the rejection under Section 102(b) and submit the following remarks in response thereto.

The basic principle of the disclosure of Sakai et al., U.S. Patent No. 6,274,960 (hereinafter, "Sakai et al"), was previously disclosed as early as 1971, for example, in the article published in the Japanese Electric Society Magazine, 1971 Vol. 91, No. 4, Announcement No. 46-39, "Comparison for non-synchronous starting characteristics between presence and non-presence of conductive bars between poles in multi-phase synchronous machine with braking winding." In contrast to Sakai et al, the object of the instant invention as set forth in claim 1 relates specifically to the design of the rotor of an induction starting synchronous motor, in particular, an improvement on prior art rotor construction as shown in Figure 2 of this application. The object of the claimed invention is improved rotor design to enhance the efficiency and the power factor of an induction starting motor. (Specification, paras. 0013, 0015). The improvement as set forth in claim 1 enhances efficiency and power factor in the motor without increasing the amount of permanent magnet that must be used, thereby controlling costs of manufacturing the rotor (Specification, para. 0012). Further, this improved rotor design decreases the leakage fluxes, and improves efficiency and power factor without the air gaps of prior art rotors, such as the air gaps of shown in Sakai et al, and the air gaps 7 shown in the prior art rotor of Figure 2 of the instant application. The limitations of claim 1 herein differ from the disclosure of Sakai et al., *inter alia*, in the specific placement of the

magnets side by side in a longitudinal direction of the rotor core to form sets of magnets, two sets of the magnets forming respective poles of the motor, with the two sets of magnets forming each of the poles being located inclined in a cross-sectional plane of the core, the magnets being rotated into directions such that magnetic fluxes induced by the two sets of magnets cancel each other. As defined in claim 2, two divided magnet pieces are contained in one slot. The structure of the claimed invention differs from the perpendicular arrangement of magnets in Sakai et al., wherein the cavities for accommodating the magnets are "arranged in a cross manner" (Sakai et al., col 17, line 15). The location of magnets as defined in the claims yields an embodiment having the improved efficiency levels shown in Figure 3 of this application.

It is thus submitted that the amended claims are novel and non-obvious over the prior art. It is submitted that the invention is presented in clear and concise patentable terms, that all objections and rejections have been properly addressed herein, and that the application is in condition for allowance. Prompt, favorable treatment of the application is respectfully requested.

The Commissioner is hereby authorized to charge any fees associated with this communication, including a fee for a three-month extension of time, hereby requested, to our Deposit Account No. 50-0305. The Examiner is encouraged to call Robert J. Schneider at the direct number (312) 845-3919 with any questions that arise in connection with this application.

Respectfully submitted,

  
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I hereby certify that the attached correspondence, namely: Response to Office Action, was transmitted by facsimile on the date listed above, to the U.S. Patent Office at the facsimile number listed above, under 37 C.F.R. § 1.8.

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October 29, 2004

Date of Signature